

SWBAT: discover series and parallel circuits

Jan 4-7:20 AM

Welcome!!!

H. Leslie Grebe

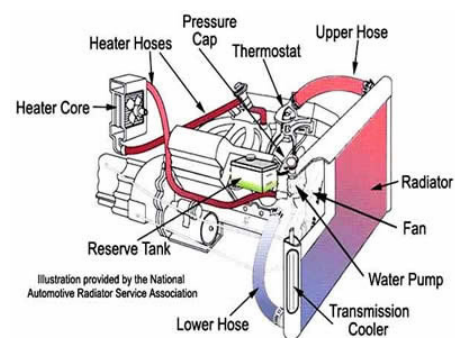
- * Pick up:
 - slip of paper (for later)
 - yellow concept sheet from shelf

Opening Questions:

Cooling system on a car: better for it to have openings or be closed??? ← GOOD!

↳ FLUID LEAKS OUT

centering



SECA Physics
Friday 4 March 2016

Sep 7-7:04 AM



Mystery Resistor - extra credit

- You may work alone or with at most one other person of your choosing.
- Get a "Mystery Resistor" labeled with a letter from Leslie
- Use the same equipment that our teams used in class. Take measurements that will allow you to calculate the resistance (in Ohms) of your resistor.
- You may work when there is spare time in class, during lab or arrange other time with Leslie.

Due by 3:00 Friday 3/20

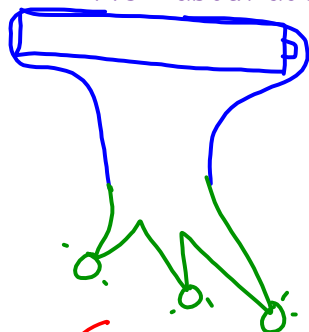
Jan 19-7:12 AM

Puzzle of the day:

With 2 batteries and 2 wires, how many bulbs can you get to light???

IF BATTERY GETS HOT,
STOP IT!
Safety Rule???

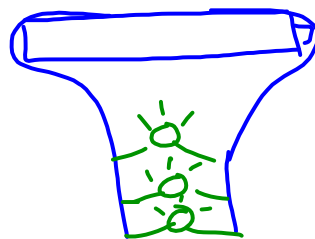
NOT about adding voltage (batteries)



SERIES

- MORE BULBS = DIMMER
- ONE PATH
- ALL WORK OR NONE

FAT BATTERY = LASTS LONGER



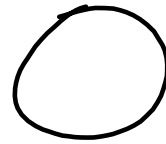
PARALLEL

- MORE BULBS = SAME BRIGHT
- MORE THAN 1 PATH
- ADD OR SUBTRACT
→ NO DIFFERENCE

Mar 9-7:31 AM

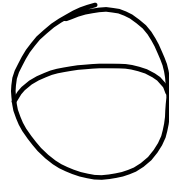
Catchy Physics Phrases

Series circuits have... ONE PATH



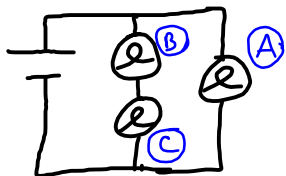
Parallel circuits have...

MORE THAN ONE PATH

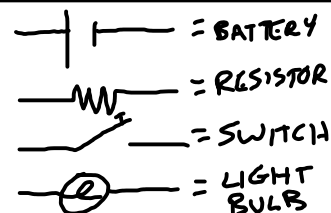


Mar 4-9:10 AM

Circuit Puzzles: Predict, explain, observe



ALL BULBS
ARE IDENTICAL



- 1) HOW WILL THE BRIGHTNESSES OF THE 3 BULBS COMPARE? ($A = B = C$? $A > B > C$? ...)

Observation: $A > B = C$

Explanation: Electrons going down far path have only one resistor.

- 2) IF I UNSCREWED B (OR IT BURNED OUT), WHAT WOULD HAPPEN TO A & C?

Observation: A stayed the same. C went out.

Explanation: Thinking of Circuitopia airport, if one line had a passport checker AND visa checker, that line would just stop if one went on break.

The other line that only required one check would just keep doing what it was doing, no matter how many other lines are open.

Mar 23-7:45 AM

Concept sheet: 6 rows total

Bike

Concept	Meaning	Symbol	Units	Analogy
CHARGE	PROPERTY OF PROTONS & ELECTRONS THAT CAUSES ATTRACTION & REPULSION	q	COULOMBS C	
VOLTAGE = ELECTRIC POTENTIAL	POTENTIAL BASED ON POSITION IN AN ELECTRIC FIELD "PUSH"	V	VOLTS V $V = \frac{J}{C}$	PERSON PEDALING ⇒ THE PUSH
CURRENT	THE FLOW OF ELECTRIC CHARGE $= \frac{\text{CHARGE}}{\text{TIME}}$	I $I = \frac{q}{t}$	AMPERE A $1A = \frac{1C}{1s}$	- WHEEL CHAINS MOVING
RESISTANCE	OPPOSITION OF CURRENT "AGAINST THE FLOW"	R	OHMS Ω	BRAKES
OHM'S LAW	VOLTAGE = CURRENT TIMES RESISTANCE	$V = I \cdot R$	$V = I \cdot \Omega$	HOW HARD DO YOU PEDAL? BRAKE AFFECTS SPEED

$$\frac{q}{I \cdot t}$$

$$\frac{V}{I \cdot R}$$

Feb 23-7:34 AM

Daily 3 Questions

- * Every day except test/project days
- * 3 Questions on the topics of the day
- * Main source of daily points
- * I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

You can't get your points if you don't have your NAME!!!

Name

Period

1.

2.

3.

Sep 9-7:32 AM

1. Are the bulbs brighter in series or in parallel?

2. What is the name for a circuit that has more than one path (series or parallel)?

3. Which one can you add or subtract bulbs without it changing the other bulbs brightness? (series or parallel)

Feb 18-6:59 AM